



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/629,015 | 07/29/2003 | Kimberly Kuhlman | CIT.PAU.39 | 7638 |

7590 09/08/2004

Daniel L. Dawes
Myers Dawes Andras & Sherman LLP
11th Floor
19900 MacArthur Boulevard
Irvine, CA 92612

| |
|----------|
| EXAMINER |
|----------|

NGUYEN, KIET TUAN

| | |
|----------|--------------|
| ART UNIT | PAPER NUMBER |
|----------|--------------|

2881

DATE MAILED: 09/08/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|-------------------------------|------------------------------------------|--|
| Office Action Summary | Application No. 10/629,015 | Applicant(s) AK KUHLMAN ET AL. | |
| | Examiner Kiet T. Nguyen | Art Unit 2881 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-40 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-40 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|-----------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>20040905</u> . | 6) <input type="checkbox"/> Other: ____. |

Rejection Under 35 U.S.C. 112, Second Paragraph

Claims 17-18, 24 and 28-29 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 17 recites the limitation "the array" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Claim 18 recites the limitation "the array" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Claim 24 recites the limitation "the array" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Claim 28 recites the limitation "cross sawing grooves" in line 1. There is insufficient antecedent basis for this limitation in the claim.

Claim 29 is indefinite for reciting the limitation "nonphotolithographically defining a plurality of regularly shaped posts" in line 5. What is the method or apparatus nonphotolithographically performed to define the posts?

Rejection Under 35 U.S.C. 112, First Paragraph

Claims 7 and 25-40 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The specification is unclear for reciting the limitations "nonconductive or nonmetallic specimen defining a plurality of posts for atom probe analysis" as

Art Unit: 2881

recited in claims 25, 29, 37 and 39; "nonphotolithographically defining a plurality of regularly shaped posts" as recited in claim 29; and "filling each ... microgrooves" as recited in claims 7, 38 and 40. Therefore, the examiner don't understand how is the nonconductive or nonmetallic probe operated in a probe microscope apparatus for analyzing a sample? What is the method or apparatus nonphotolithographically performed to define the posts? How is the step of the supporting material filled in each microgroove prior to cut the microgrooves which are formed by the step of cutting a slab?

Additional explanations are needed if applicant insists on including these features in claims 7, 25, 29 and 37-40.

Clarification without the introduction of new matter is required.

Rejection Under 35 U.S.C. 102(b)

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-4, 7-8, 11, 14-26, 37 and 39-40 are rejected under 35 U.S.C. 102(b) as being anticipated by Larson et al. ("Advances in Atom Probe Specimen Fabrication from Planar Multilayer Thin Film Structures").

Claims 1-4, 7-8, 11, 14-26, 37 and 39-40, as the best understood by the meaning of 112, first and second paragraphs above, are rejected as:

Larson et al. disclose, in figs. 1-10, a method for preparation of a specimen for atom probe. The method includes lithographically defining a plurality of posts having prismatic sections in a slab having parallel and intersecting cutting grooves (see fig. 2); removing the posts from the slab (see fig. 3); mounting the post on a metallic pin (see fig. 4); using FIB for shaping the post to a tip shape (see fig. 5); filling an oxide film to serve as an etch stop for lithographic patterning of the posts (see page 26, lines 1-10 in left col.); and fracturing the posts from the slab by a knife or other sharp implement (see page 26, lines 7-11).

Rejection Under 35 U.S.C. 103(a)

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of

Art Unit: 2881

35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 5-6, 9-10, 12-13, 27-36 and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Larson et al. ("Advances in Atom Probe Specimen Fabrication from Planar Multilayer Thin Film Structures").

Claims 5-6, 9-10, 12-13, 27-36 and 38, as the best understood by the meaning of 112, first and second paragraphs above, are rejected as:

Larson et al. disclose all the features as discussed above except cutting the grooves with a saw as recited in claims 5, 13, 27, 32 and 38; nonphotolithographically defining a plurality of regularly shaped posts in the slab as recited in claim 29; removing the material by mechanical means as recited in claim 9; removing the material by electrical means as recited in claims 10 and 30; removing the material by laser means as recited in claims 12 and 31; and separating a section having a plurality of posts from the slab as recited in claim 34.

Using the saw, mechanical means, electrical means or laser means to cut the grooves in the slab for defining the posts, or nonphotolithographically defining a plurality of regularly shaped posts is considered to be obvious variation in design; since the saw, mechanical means, electrical means or laser means is nonphotolithographically a conventionally equipment used to cut a material (see lines 8-20 of page 12 of the specification and a mechanical cutter 22 in fig. 2 of Ishikawa et al.), thus would have been obvious to one skilled in the art to use nonphotolithographically the saw, mechanical means, electrical means or laser

Art Unit: 2881

means to cut the specimen in the Larson et al. as Larson et al. disclose lithographically defined silicon post structures (see fig. 2).

Separating a section having a plurality of posts from the slab is considered to be obvious variation in design, since separating the section having a plurality of the posts from the slab and a single post from the slab have the same results for making the atom probes, thus would have been obvious to one skilled in the art to separate the section having a plurality of posts from the slab in the Larson et al. for making the atom probes as Larson et al. disclose making a single probe for each time process.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kiet T. Nguyen whose telephone number is 571-272-2479. The examiner can normally be reached on Monday-Friday from 8.00 AM to 6.00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John R Lee, can be reached on Monday-Friday. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR

Art Unit: 2881

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



KIET T. NGUYEN
PRIMARY EXAMINER